

## WE CLAIM

27. A method of configuring an enterprise directory for IP telephony, the method comprising the steps of

- (a) providing an X.500 compatible directory; and
- (b) including in a schema of the directory at least one object for representing a component of an IP telephony system, the component selected from a group consisting of:

- a GateKeeper;
- a Gateway;
- a Multipoint Control Unit (MCU);
- a GateKeeper Exchange; and
- a user with associated telephony service attributes.

165. A communication system comprising:

- a public switched telephone (PST) network;
- an internet protocol (IP) network;
- a plurality of gateway networks coupled to the PST network and the IP network, each of the plurality of gateway networks configured to route a telephone call over the PST network or the IP network; and

- a directory server coupled to the plurality of gateway networks, the directory server comprising an enterprise directory having an extensible schema configured to provide data to support routing of telephone calls.

166. A communication system according to claim 165 wherein each of the plurality of gateway networks comprise a gateway database capable of providing information for

routing the telephone call over the IP network, and wherein the gateway database is created from information dredged from the directory server.

167. A communication system according to claim 166 wherein the directory server is coupled to the IP network, and wherein users of the communication system can make changes to objects in the directory server representing components of the communication system through a web browser coupled to the IP network.

168. A communication system according to claim 166 further comprising computer software capable of automatically updating the gateway databases to reflect changes in the directory server.

169. A communication system according to claim 166 further comprising computer software capable of updating the gateway databases when a new gateway network is added to the communication system and information for the new gateway network entered in the directory server.

170. A communication system according to claim 169 wherein the computer software is configured to update a gateway database associated with one of the plurality of gateway networks when the gateway network is placed in operation.

171. A communication system according to claim 165 wherein the directory server comprises in its schema at least one object selected from a group consisting of:

- an object configured to represent a GateKeeper;
- an object configured to represent a Gateway;
- an object configured to represent a Multipoint Control Unit;
- an object configured to represent a GateKeeper Exchange; and

an object configured to represent communication system user with associated telephony services attributes.

172. A communication system according to claim 165 wherein the enterprise directory includes at least one directory selected from the group consisting of:

- a Novell Directory Services (NDS) compatible directory;
- a Microsoft Active Directory Services® (ADS) compatible directory;
- a Microsoft NT® domain compatible directory;
- an X.500 compatible directory;
- a Netscape® Directory Server; and
- a lightweight directory access protocol (LDAP) server.

173. A communication system according to claim 165 wherein the telephones comprise IP telephones.

174. A communication system according to claim 173 wherein the IP telephones include H.323 compliant telephones.

175. A communication system according to claim 165 wherein the telephones comprise non-IP telephones including at least one telephone selected from the group consisting of:

- private branch exchange telephones; and
- plain old telephones (POTS).

176. A method of operating a communication system having a plurality of gateway networks coupled to an internet protocol (IP) network and to a public switched telephone (PST) network to route a telephone call over the IP network, the method comprising steps of:

providing a directory server;

accessing the directory server to create a plurality of gateway databases, each gateway database associated with one of the plurality of gateway networks and each gateway database comprising a list of telephone numbers that each of the plurality of gateway networks will accept;

connecting a user to one of the plurality of gateway networks via a calling telephone;

accepting a telephone number entered by the user;

accessing the gateway database associated with the gateway network to determine which of the plurality of gateway networks will accept the telephone number entered by the user; and

routing the telephone call from the calling telephone over the IP network.

177. A method according to claim 176 wherein the step of providing a directory server comprises the steps of:

coupling an enterprise directory having an extensible schema to the IP network; and

extending the schema of the enterprise directory with objects representing components of the communication system to create the directory server.

178. A method according to claim 176 wherein the step of providing a directory server comprises the steps of:

designating one of the plurality of gateway databases as a master database;

designating the remaining gateway databases as slave databases; and

creating within a schema of the master database objects representing components of the communication system to create the directory server.

179. A method according to claim 176 wherein the step of providing a directory server further comprises the steps of:

accessing a company database coupled to the IP network; and

copying the company database to the master database.

180. A method according to claim 176 comprising the further step of accessing the directory server to provide a company white pages comprising lists of users and telephone numbers.

181. A method according to claim 180 comprising wherein the step of providing a company white pages comprises the step of providing company white pages in which the telephone numbers depend on a location from which the company white pages is accessed.

184. A communication system comprising:

a public switched telephone (PST) network;

an internet protocol (IP) network;

a plurality of voice gateways coupled to the PST network and the IP network, each of the plurality of voice gateways configured to route a telephone call over the PST network or the IP network; and

general purpose directory-services comprising a distributed network of directory servers coupled to the plurality of voice gateways, the directory services configured to provide data to support routing of telephone calls over the IP network and having an extensible schema including at least one IP telephony object selected from a group consisting of:

an object configured to represent a GateKeeper;

an object configured to represent a Gateway;

an object configured to represent a Multipoint Control Unit;

an object configured to represent a GateKeeper Exchange; and

an object configured to represent communication system user with associated IP telephony services attributes,

the directory-services comprising at least one directory-services selected

from the group consisting of:

- 5      a Novell Directory Services® (NDS);
- a Microsoft Active Directory Services® (ADS);
- an X.500 based directory-services;
- a Netscape® Directory Server; and
- a lightweight directory access protocol (LDAP) compatible directory-

services,

whereby a single point of entry is provided for making additions, changes

and deletions of the IP telephony objects by making additions, changes and deletions in

10      the schema of the directory services.

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